

Attachment to Preliminary Amendment dated January 4, 2002**Marked-up claims 1 - 13**

1. (Amended) A method for optical measuring systems, comprising a sensor element [(6)] connected to a measuring and control unit [(10)] via an optical connection [(3)] and being adapted for providing a signal corresponding to a measurement of a physical parameter [(p)] influencing the sensor element [(6)], said method comprising

generation of a measuring signal that is brought to come in towards the sensor element [(6)], and

detection of said measuring signal [(B)] in the measuring and control unit [(10)], after influencing the measuring signal in the sensor element [(6)],

[characterised] characterized by the method further comprising:

partial reflection of the measuring signal at a point along the optical connection [(3)], located at a predetermined distance from the sensor element [(6)],

detection of the intensity of the signal [(A)] corresponding to said partially reflected measuring signal, and

determination of a measurement of said parameter [(p)] based upon the intensity of the partially reflected signal [(A)] and the intensity of the measuring signal [(B)].

2. (Amended) The method according to claim 1, [characterised] characterized by comprising:

determination of a value corresponding to the quotient of the intensity [(I<sub>A</sub>)] of said reflected signal [(A)] and the intensity [(I<sub>B</sub>)] of said measuring signal [(B)], and

determination of a measurement of said parameter [(p)] based upon said quotient [(I<sub>A</sub>/I<sub>B</sub>)].

3. (Amended) The method according to claim 1, [characterised] characterized by comprising:

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determination of a value corresponding to the difference between the intensity  $[(I_A)]$  of said reflected signal  $[(A)]$  and the intensity  $[(I_B)]$  of said measuring signal  $[(B)]$ , and  
determination of a measurement of said parameter  $[(p)]$  based upon said difference  $[(I_A - I_B)]$ .

4. (Amended) A method according to [any one of the preceding claims] claim 1,  
[characterised] characterized by said measuring signal  $[(B)]$  being a light pulse.

5. (Amended) A method according to [any one of the preceding claims] claim 1,  
[characterised] characterized by the feeding of the measuring signal into the sensor element  $[(6)]$  causing optical interference in a cavity  $[(6a)]$  of the sensor element  $[(6)]$ .

6. (Amended) A method according to [any one of the preceding claims] claim 1,  
[characterised] characterized by being used for measuring pressure  $[(p)]$ , said sensor element  $[(6)]$  defining a membrane  $[(6b)]$ , acted upon by the pressure  $[(p)]$  surrounding the sensor element  $[(6)]$ .

7. (Amended) A method according to [any one of the preceding claims] claim 1,  
[characterised] characterized by being used for measuring the acceleration or the temperature of said sensor element  $[(6)]$ .

8. (Amended) A method for optical measuring systems, comprising a sensor element  $[(6)]$  connected to a measuring and control unit  $[(10)]$  via an optical connection  $[(3)]$  and being adapted for providing a signal corresponding to a measurement of a physical parameter  $[(p)]$  influencing the sensor element  $[(6)]$ , said method comprising  
generation of a signal which is brought to come in towards the sensor element  $[(6)]$ , and

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detection of said signal in said measuring and control unit [(10)] after influencing the measuring signal in said sensor element [(6)],

[characterised] characterized by the method further comprising determination of a measurement of the length of said optical connection [(3)], based upon a measured period of time elapsing from the generation of said signal until the detection of said signal.

9. (Amended) The method according to claim 8, [characterised] characterized by said length determination being used for identification of the current type of sensor element [(6)], said length of said optical connection [(3)] being selected to correspond to a specific type of sensor element [(6)].

10. (Amended) A device for optical measuring systems, comprising a sensor element [(6)] connected to a measuring and control unit [(10)] via an optical connection [(3)] and being adapted for providing a signal corresponding to a measurement of a physical parameter [(p)] influencing the sensor element [(6)], said device further comprising a light source [(2)] functioning to generate a measuring signal brought to come in towards the sensor element [(6)], and a detector [(7)] for detecting the intensity of the measuring signal [(B)] in the measuring and control unit [(10)], after influencing the measuring signal in the sensor element [(6)],

[characterised] characterized by comprising a semi-reflecting device [(12)] for partial reflection of the measuring signal at a point along the optical connection [(3)] at a predetermined distance from the sensor element [(6)], said detector [(7)] being arranged for detection of the intensity of the signal [(A)] corresponding to said partially reflected measuring signal, and by comprising an evaluation unit [(9)] for determining a measurement of said parameter [(p)], based upon the intensity of the partially reflected signal [(A)] and the intensity of the measuring signal [(B)].

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11. (Amended) The device according to claim 10, [characterised] characterized by said sensor element [(6)] comprising a cavity [(6a)], shaped so as to create optical interference when feeding said measuring signal into the cavity [(6a)].

12. (Amended) The device according to claim 9, [characterised] characterized by said cavity [(6a)] being obtained through building up molecular silicone and/or silicone dioxide layers, and an etching procedure.

13. (Amended) The device according to claim 12, [characterised] characterized by said cavity [(6a)] being obtained through [utilising] utilizing a bonding procedure.

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